

Third West Weekly Report Shepherd, Michael

1241230 - R8 SDMS

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)' 05/09/2012 03:34 PM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@rockymountainpower.net>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Bamitz (cbamitz@utah.gov)'" <cbarnitz@utah.gov>

7 Attachments

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POF

POF

PIF

Weekly Reports 04-30 to 05-04.pdf Third West Weekly Log 2012-18.pdf 234883-1.pdf 234993-1.pdf 235070-1.pdf

PGF PGF

235168-1.pdf 235272-1.pdf

Joyce & Craig,

Attached are the reports for the week of April 30, 2012.

All air monitoring results came back negative, except one chrysotile hit on Friday, May 4, 2012.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
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3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

		DAIL I CHECKLIST
DATE	:	04/30/11
Ge	neral	
		area Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	<u>.</u>	activities for the day
NA		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA		Site hazard and safety instruction for all first time employees, contractors or visitors
NA		Complete Employee Meeting Record Form B (where applicable)
NA		Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
ر	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
		Exclusion zone operations are practiced as instructed.
		☑ Decontamination unit is working properly.
		☑ Workers are using decontamination unit as instructed.
		☑ Workers use personal protective equipment properly.
☑		Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation
_		sites and track out prevention.
☑		Review sign-in/sign-out log throughout and at the end of the workday.
☑		Secure the site at the end of the workday •
Sa	mpling	
NA Ø	Soil C	onfirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the
NI A		exclusion zone Personal Personal Personal Applications on personal conducting contaminated dust and soil
NA		Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	\	Digitally photograph each sample location and at any place field sampling personnel determined necessary





V		Electronically file photo files into the on-site database
V		Complete Field Documentation
	$\overline{\mathbf{V}}$	Field Sample Data Sheets (FSDS)
	$\overline{\mathbf{A}}$	Logbook •
	$\overline{\mathbf{V}}$	On-site computer database
		Label each sample media with a unique number
		Seal sample(s) in zip lock plastic bags
Ø		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø		Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
		Review and disseminate sample results as received from the laboratories to Project
		Manager and other appropriate managers and employees
		Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station	Date: 04/30/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	· ·
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard .	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.	3		х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	х		9	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	,
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	•
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.	Δ.		x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			*
1926.102 (a) (1)	Eye and face protection shall be provided.	х			*
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Comments:

Exclusion zone inactive today.

Newman backfilled and compacted over conduit trench along east side up to the gate. They did some leveling in the N.E corner near switch gear. This temporarily uncovered a small amount of native soil that they covered back up. CVE line crew continued working on structure steel and equipment between transformer 1 and switch gear. CVE electricians continued working on control cable layout and connections.

Wasatch electric continued pulling cable for Gadsby line inside the yard and on the west side of 4th west. Weather was partly cloudy, and warm with no precipitation. Light winds and temperatures around 70.





3RD WEST SUBSTATION REMEDIATION PROJECT **HEALTH SAFETY MANAGER (HSM)**

	<u>DAILY CHECKLIST</u>
DATE:	05/01/11
•	
Gen	
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
Bata	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with
	contaminated material.
NA	Confirm return of waste material manifest documents for each load with site
	manager.
NA (Complete all CSHASP Forms (for applicable activities planned for that day)
	NA Illness/Injury Report Form A
ľ	NA Site-Specific Training Record Form C
ľ	NA Hot Work Permit Form D
1	NA Trench/Evacuation Permit Form E
ľ	NA Combined Space Entry Permit From F
•	Exclusion zone operations are practiced as instructed.
	☐ Decontamination unit is working properly.
	☑ Workers are using decontamination unit as instructed.
	Workers use personal protective equipment properly.
Ø	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation
	sites and track out prevention.
\Box	Review sign-in/sign-out log throughout and at the end of the workday.
\square	Secure the site at the end of the workday
ς	
Sam	pling
NA S	Soil Confirmation sampling for any newly excavated areas
 ✓	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
	removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





☑		Electronically file photo files into the on-site database
$\overline{\checkmark}$		Complete Field Documentation
		Field Sample Data Sheets (FSDS)
		Logbook
		On-site computer database
		Label each sample media with a unique number °
		Seal sample(s) in zip lock plastic bags
☑		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑		Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
☑	•	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
		Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station	Date: 05/01/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

Standard	Title	☐ In Compliance	Out of Compliance	D N/A	Corrective Action Taken and
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	Dute
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	A
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	,
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	х			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.	u u		x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			8
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new			x	
(2)	one is prepared.				1

Comments:

Exclusion zone active once excavations began.

Newman washed out their end dump truck once in the morning and once in the afternoon. They added new fill material and began lifting the grade around the structure steel throughout the rest of the day.

CVE line crew continued working on structure steel and connection between transformer and switch gear.

CVE electricians continued to work on control cable lay out and connections at circuit breakers. Wasatch electric/South wire continued pulling cable for Gadsby line.

Overnight rains had soaked the surface soil but drainage appeared to be contained within the yard. Weather was mild, mostly overcast and warm with light breezes. Temperatures around 70 and no precipitation.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH-SAFETY MANAGER (HSM)

DAILY CHECKLIST

		Ditto Checkensi
DATE	:	05/02/11
Ge	neral	-
		area Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	-	activities for the day
NA		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
	-	to commencement of any site work. Instruction, review hazards, health & safety issues
•		and any modifications to the CSHASP
NA		Site hazard and safety instruction for all first time employees, contractors or visitors
NA		Complete Employee Meeting Record Form B (where applicable)
NA	· •	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with
		contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
		manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
		Exclusion zone operations are practiced as instructed.
		☐ Decontamination unit is working properly.
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☑		Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation
		sites and track out prevention.
☑		Review sign-in/sign-out log throughout and at the end of the workday.
☑		Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA	Soil C	onfirmation sampling for any newly excavated areas
	3011 C	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
_		exclusion zone
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N.A		Digitally photograph each sample location and at any place field sampling personnel
-		determined necessary





		Electronically file photo files into the on-site database
		Complete Field Documentation
		Field Sample Data Sheets (FSDS)
		Logbook
	 ✓	On-site computer database
		Label each sample media with a unique number
		Seal sample(s) in zip lock plastic bags
Ø		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
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☑		Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
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3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station	Date: 05/02/12
Location: 3 rd West, 1 st South, SLC	Job Number:
Survey Conducted By: _Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and Date
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1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
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1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
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1926.1053 (b)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	100
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
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1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
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Standard	Title				Date
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Comments:

Exclusion zone active once excavations began.

Newman washed out their end dump truck once in the morning and once in the afternoon. They excavated the retention envelope trench along the south side of the yard until native soil was reached and stopped. They continued backfilling around the structure and east side of yard.

CVE line crew continued buss work connection from transformer to switch gear in bay 1.

CVE electricians continued working on control cable connections at breakers.

Wasatch electric continued pulling cable to risers in bay 1.

Jones drilling was on site to drill ground rod holes down to existing concrete foundation at about 10 feet under structure steel. This drilling penetrated native soil under the concrete floor and brought small amounts to the surface.

Weather was war, and mostly sunny with light breezes. Temperatures in the mid 70s and no precipitation.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

	DAILY CHECKLIST
DATE:	5/3/12
C1	
<u>General</u> ☑	Work area Hoalth and Cofety Inspection
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
NA	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with
	contaminated material.
NA	Confirm return of waste material manifest documents for each load with site
	manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation sites and
	track out prevention.
$\overline{\mathbf{A}}$	Review sign-in/sign-out log throughout and at the end of the workday.
	Secure the site at the end of the workday; PacifiCorp Employee
Sampling	
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
	removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
Ø	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
\square	Logbook
NA	On-site computer database
$\overline{\mathbf{V}}$	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
7	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database

Ą



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	5/3/12
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.	41		х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	O N/A	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	x		9	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			e e
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	x			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	\ .
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	х			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x			
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	X			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	х			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	х			
1926.651 (c)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			x	
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½" fire resistance barrier.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	,
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			х	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			X	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

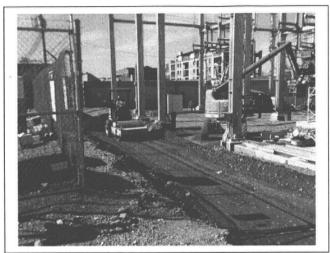
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	х			

Comments:

CVE installed and wired up yard lights; drove 4 rods.

Newman excavated along the South wall in an expanded exclusion zone for about 2 hours. The temporary expanded exclusion zone was moved back as soon as excavation was complete. Also filled 2 dump trucks with contaminated soil and hauled it off-site.

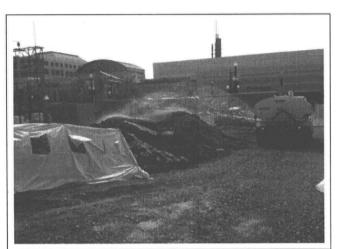
Emerson continued with their equipment checks.



РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 04/30/12	FILE:

SITE PHOTOGRAPHS

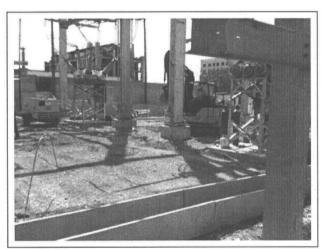




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	DCR	
DRAWN BY:	DATE 05/01/12	FILE:	

SITE PHOTOGRAPHS





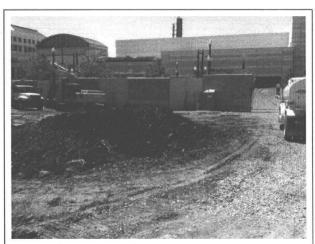
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

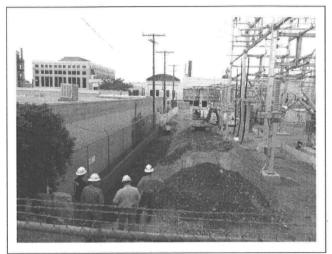
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

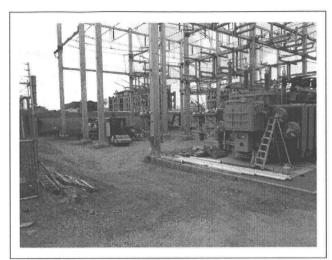
DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 05/02/12	FILE:

SITE PHOTOGRAPHS

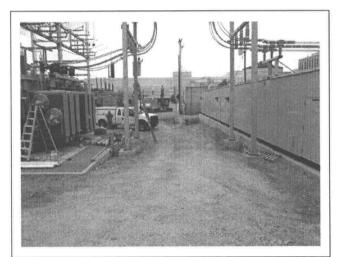




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	1
CREATED BY: JRWC	DATE: 5/3/2012	FILE:	

SITE PHOTOGRAPHS



PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild Monday, April 30, 2012 PO & Work Order NO.: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Stop Time: Crew Start Time: 6:45 17:20 Tot Hrs mns: FCR Stop Time: 17:40 FCR Start Time: 6:36 Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Sunny - 47 degrees in AM, 77 degrees in PM DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set four monitors. CVE Fab Crew not on site. CVE Electrical Crew worked eight hours and is piping CBs 134 and 146, pulling station service wire (350 MCM) and completing wiring at xfmr #1 and CBs 132 and 144. CVE Line Crew is assisting the electricians and started jumpers from xfmr #1 to the switchgear. They hung the station service transformer for xfmr #1. Nevman backfilled the north half of the east duct bank between vaults 7/8 and 9/10 and then backfilled around vaults 7/8 to provide access for CVE line crew to install jumpers from xfmr #1 to the switchgear. Some removal of material around vaults 7 and 8 will be necessary as the material on the west side was just pushed in to facilitate the line crew getting in to do the jumpers between xfmr #1 and the switchgear. Southwire/Wasatch plans to set up at Gadsby termination pole with the new reel and set up the puller in the substation. They plan on running a hard line from the sub to the termination pole, pulling to the vault, then resetting the reel at the vault and pulling into the sub. This will alleviate one repositioning of the puller. The first pull from the tenn pole to the yault on 400 West was completed at 2:05 PM. The pull from the yault to the substation was completed by 4:45 PM and then they had to clean up and move the reel trailer. Emerson was not on site today, but in my previous report I indicated that he would be back on site today. That was in error, because there wasn't anything new for him to test until CVE electricians got some additional wire pulled and terminated. As of now, Doug (Emerson) is planning on being back here on Thursday. CVE Line Crew = 4, CVE Fab Crew = 0, CVE Electrical Crew = 3, Newman = 5, Emerson = 0, Pedersen = 1, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Dave Hurst 0636 Dispatcher logout, name and time: DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: 4/21 - identified a dimension issue on the PASCOR ground switch control arm. (22' vs 25') Received extensions and couplers and installed. **DELAYS OR LOST TIME ENCOUNTERED:**

EQUIPMENT (working,	delivered,	idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex, water truck, compactor, backhoe.

OSHA Recordable Safety Incidents: Reported by: Time:

Rocky Mountain Power

Russ Johnson

Field Construction Representative

A division of PacifiCorp

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub - Rebuild		DATE : Tu	DATE: Tuesday, May 1, 2012				
PO & Work Order NO. :	3000078050 / 10035803		MAIN CONTRACTOR	AIN CONTRACTOR : Cache Valley Electric				
Crew Start Time:	6:50	Crew Stop Time:	17:20	Tot Hrs mns:	10:30			
FCR Start Time:	6:44	FCR Stop Time:	17:25	Tot Hrs mns:	10:41			
Use military time format 00:00								
WEATHER CONDITIONS: Sunny - 46 degrees in AM, 75 degrees in PM								
DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set four monitors. CVE Fab Crew not on site. CVE Electrical Crew worked eight hours and is pulling wire and terminating CBs 134								
and 146. CVE Line Crew is working on the jumpers on the structures between xfmr #1 and the switchgear. Roger Fuerst has approved the use of the 20" insulator as it gives us the elevation we need for the jumpers to come off the switchgear in a horizontal position. Newman loaded out their end dump this morning and this afternoon with material to Clean Harbors. They have also been leveling the area under the 138 kV bus in preparation for placement of yard rock. Southwire/Wasatch pulled in the hardline from the sub to the termination pole for the final Gadsby conductor. They pulled the section from the term pole to the vault by 1:45 PM and the section from the vault to the substation by 3:50 PM. Wasatch still has a couple of conduits on the Jordan line to proof, so we probably won't see cable coming into the sub until late tomorrow afternoon. Emerson was not on site today, and now indicates they will arrive on Thursday after CVE gets the last two breakers wired up completely. CVE Line Crew = 4, CVE Fab Crew = 0, CVE Electrical Crew = 3, Newman = 5, Emerson = 0, R&R = 1, Wilding = 1.								
Dispatcher login, name and time:	Jim Bowman 0	644		· ·	,			
Dispatcher logout name and time	E: Kim Batt 1724							
DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN:								
				•				
<u> </u>	•							
			1					
4/21 - Identified a dimension issue or	the PASCOR ground:	switch control arm. (22' vs 25')	Received extensions and cour	lers and installed.				
DELAYS OR LOST TIME ENCOUNTERED:								
EQUIPMENT (working, deliv								
CVE fab crew: Portable toilet (3), for JLG (2), tool trailer. Newman: trache	· ·			:k. CVE Line Crew:	Pickup (2)			
OSHA Recordable Safety In	cide nt s:		Reporte	d by:	Time:			
]			

Rocky Mountain Power

Russ Johnson

Field Construction Representative

A division of PacifiCorp

PACIFICORP OPERATIONS - Field Construction Representative Daily Log Third West Sub - Rebuild PROJECT NAME: DATE: Wednesday, May 2, 2012 PO & Work Order NO.: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: 6:50 Crew Stop Time: 18:00 **Tot Hrs mns:** 11:10 6:39 18:05 FCR Start Time: FCR Stop Time: Tot Hrs mns: 11:26 Use military time format 00:00 **WEATHER CONDITIONS:** Sunny - 50 degrees in AM, 75 degrees in PM DESCRIPTION: (work performed, general comments, Instructions to contractor, # of crew members onsite.) R&R set four monitors. CVE Fab Crew not on site. CVE Electrical Crew, one person, worked eight hours and is installing and wiring to the west bus differential box. CVE Line Crew is working on the jumpers on the structures between xfmr #1 and the switchgear, wiring and grounding the station service transfonner for xfmr #1, and piercing the switches after they were examined by Jack Bottino, Owen Wahlstrom, and Luke Hoffman. Newman loaded out their end dump this morning and this afternoon with material to Clean Harbors. They have also been leveling the area under the 138 kV bus in preparation for placement of yard rock, and digging out along the south concrete retaining wall to start installing the fabric wrapped ABC material (retaining wall). Southwire/Wasatch is pulling mule tape into the Jordan conduits (A phase only) and will be pulling a test piece of wire into one of the conduits running from the term pole to the vault on 400 West. The madril has been hanging up there and they want to try to determine if there is an issue with the conduit. Emerson was not on site today, but will be on site on Thursday, May 3rd. Jones Excavating amved late in the PM and drilled four holes for ground rods. They left their drill rig on site and will return to drill two more holes after Newman completes the retaining wall. CVE Line Crew = 3, CVE Fab Crew = 0, CVE Electrical Crew = 1, Newman = 4, Emerson = 0, Jones = 2, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Bany Nielson 0639 Dispatcher logout, name and time: Blake Spence 1806 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle): CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex. exclusion zone conex. (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex, water truck, compactor, backhoe.

Rocky Mountain Power

OSHA Recordable Safety Incidents:

Russ Johnson

Field Construction Representative

Reported by:

Time:

A division of PacifiCorp

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West S	ub - Rebuild	DATE : Thu	rsday, Ma y 3, 2	012
PO & Work Order NO. :	3000078050	/ 10035803	MAIN CONTRACTOR	Cache Valle	y Elect ri c
Crew Start Time:	6:50	Crew Stop Time:	17:32	Tot Hrs mns:	10:42
FCR Start Time:	6:39	FCR Stop Time:	17:35	Tot Hrs mns:	10:56
Use military time format 00:00	0.00	TOROLOP TIME.	17.55		10.50
Ose minuary affice format 00.00					
WEATHER CONDITIONS:		Sunny - 54 degre	es in AM, 75 degrees in F	PM	<u>.</u>
DESCRIPTION: (work performance R&R set four monitors. CVE Fab (
Crew is not on site. CVE Utility Crebentonite. Newman loaded out th Southwire/Wasatch pulled mule tapole to the vault on 400 West and the conduit, painting the cable and breakers. Emerson will just need to 11. CVE Line Crew = 0, CVE Fill Wilding = 1.	eir end dump this mo ape into the Jordan co encountered some in repulling the cable o to complete the testin	rning and twice in the PM (to onduits, pulled a test piece of sterference to point of scami on Friday morning. Emerson og of the grounding, the Jord	otal of three loads) with mate of wire into one of the conduing the cable. They plan on so his on site today and comple an CCVTs when they return	erial to Clean Hai ts running from the swabbing both directed the two circu probably on Frice	bors. ne term rections on lit day, M ay
IF WORKING IN ENERGIZED	SUBSTATION:			<u> </u>	
Dispatcher login, name and time:	Jim Bowman 06	39			
Dispatcher logout, name and time:		<u> </u>			
DISCREPANCIES:	Transcau (100	<u> </u>	MMEDIATE CORRECTIV	/E ACTION TA	KEN:
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		· · · · · · · · · · · · · · · · · · ·			
DELAYS OR LOST TIME ENC	OUNTERED:	•			
			· - · · · · · · · · · · · · · · · · · ·		Ī
		,	,		
EQUIPMENT (working, delive	red idle).				
CVE tab crew: Portable toilet (3), fork		ailer, conex , exclusion zone co	nex (2) tool trailer crew truck	CVF Line Crew	Pickup (2)
JLG (2), tool trailer. Newman: trachor	•			OVE EING GIGW.	(2),
			· · · · · · · · · · · · · · · · · · ·		
OSHA Recordable Safety Inc	idents:		Reported	by:	Time:
					•

Rocky Mountain Power

Russ Johnson .
Field Construction Representative

A division of PacifiCorp

PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild **DATE:** Friday, May 4, 2012 PO & Work Order NO.: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: Crew Stop Time: Tot Hrs mns: 6:36 15:45 FCR Start Time: FCR Stop Time: Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Sunny - 53 degrees in AM, 75 degrees in PM DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set four monitors. CVE Fab Crew not on site. CVE Electrical Crew worked eight hours and is piping Jordan CCVTs, hanging yard lights and digging conduit trench for control conduits to xfmr #2. CVE Line Crew is not on site. CVE Utility Crew (3 people) is on site and is doing housekeeping. Newman is placing the geotech wall (east 85') and started on the next 40' section. John Mancini came by and detennined that it will not be necessary to remove the gate apron and duct bank that are middle of the 40' section. Southwire/Wasatch, after successfully pulling the dummy cable through the conduit for C phase on the Jordan line, rigged up the hardline and pulled cable from the Jordan term pole to the vault on 400 West and then pulled from the vault into the substation. Wasatch will be gone for one week. Southwire will begin on Monday, May 7 to install the terminations and splices for the Gadsby circuit. CVE Une Crew = 0, CVE Fab Crew = 0, CVE Electrical Crew = 3, CVE Utility Crew = 3, Newman = 4, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Jim Bowman 0636 Dispatcher logout, name and time: Jim Bowman 1548 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: **DELAYS OR LOST TIME ENCOUNTERED:** EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex, water truck, compactor, backhoe.

OSHA Recordable Safety Incidents: Reported by: Time:

Rocky Mountain Power

Russ Johnson

Field Construction Representative

A division of PacifiCorp



May 2, 2012

Laboratory Code: Subcontract Number:

RES NA

Laboratory Report: Project # / P.O. #

RES 234883-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer.

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 234883-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 234883-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

Analysis Type:

May 1, 2012

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

May 2, 2012

Client ID Number	Lab ID Number		Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W-043012 W	EM	879323	0.0900	938	ND	0.0046	BAS	BAS	
3W-043012 N	EM	879324	0.0900	938	ND	0.0046	BAS	BAS	
3W-043012 E	EM	879 32 5	0.0900	939	ND	0.0046	b AS	BAS	
3W-043012 S	EM	879 32 6	0.0900	939	ND	0.0046	BAS	BAS	

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

Results:

Contact

Contact

Phone Email Fax

Phone Email Fax

Date

Time

Time

Reservnira Environmentai. Inc. INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION: Company: RER Environmente Dave Roskelley Addrsss: ddress: 47 W 919005 #2 @ 3 and U . 84070 Project Number and/or P.O. # dave @ reniro.com Project Description/Localico: 312 West Sub - RND ASBESTOS LABORATORY HOURS: Weekdaya: 7aiti - 7pm **REQUESTED ANALYSIS VALIO MATRIX CODES** LAB NOTES: PLM / PCM/ TOM RUSH (Same Day) PRIORITY (Next Day) STANDARD Air = A Bulk = B (Rush PCM = 2hr, TEM = 6hr.) Paint ≈ P Dust = D CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Soil = S Wipe = W ___ RUSH ___ 24 hr. ___ 3-S Day F = Food Metal(s) / Dust Swab = SW **Prior notification ia RCRA 8 / Metals & Welding Drinking Water = DW | Wasta Water = WW required for RUSH _RUSH ___ S day ___10 day Fumo Scan / TCLP ++ eps O = Other tumarounds.** 24 tir. ___ 3 day ___5 Day "ASTM E1792 approved wipe media only" Organics MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm E.coli 0157:H7, Coliforms, S.aureus __ 24 hr. ____2 Day Salmonella, Listeria, E.coll, APC, Y & M 48 Hr. ___3-5 Day 24 Hr Moid RUSH 46 Hr 3 Day **Turnaround times ostabilsh a laboratory priority, subject to laboratory volume and are not guaranteed. Additional feet apply for afterhours, weokends and holidays,** Special Instructions: ENI Number (Laboratory Date Time Use Only) Collected Collected Clierit sample ID niimber (Sariple ID's must be unique) 3W-043012-W યો ઝાંદર 7 8 9 10 Number of eamples recatvnd: (Additional samples shall be listed on attached long form.) NOTE: REI will analyze incorning samples besed upon tolormation received and will not be responsite for errors or omissions in calculations resulting from the inaccoracy of original data. By signing client/company representative agrees that submission of the losowing samples for requeated analysis as indicated on this Chair of Custody shall constitute an analytical services agreement with payment tarms of NET 30 days, failure to comply with payment terms may flowed in a 1.5% monthly interest surctuarge. red Ex Dale/Time: 4130112 Relinguished By: Sample Condition: Sealed Intact Laboratory Use Only Yes / No Yes / No 51120 Stell-Carrier: Data/Time: Received By:

Phone Email Fax initials Contact Date Initials Phone Email Fax Initials Contact Date

7-2011 version 1

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
T	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

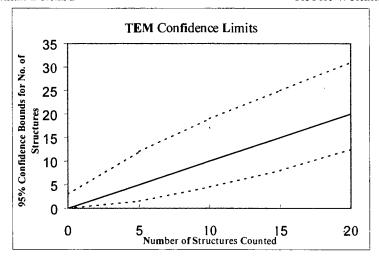
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs	Environmental, Inc.
TEM Ashes	tos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	
QА Туре	

I MIN Maneatos attor	Marc Qualit			
Client :	Raf			
Sample Type (A=Air, D=Dust):	A			
Air volume (L) or dust area (cm2)	938			
Date received by lab	slile			
Lab Job Number:	234883			
Lab Sample Number:	879823			

Analyzed by	JB
Analysis date	5/2/12
Method (D=Dlrect, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Oate Analyzed

F-Factor Calculation (Indirect Preps Only):					
Fraction of primary filter used					
Total Resuspension Volume (ml)					
Volume Applied to secondary filter (ml)					

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = ye	es, blank	= no
·	Ond Opening	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F2-3	ND												
	E2-3	ND			PM	p A	80%	infut	5%	delo	NS			
	CZ-3	ND			Por	. B-	-A							
	B2-3	NO			∀			AB 51	2/12					
	E3-3	ND					/	// /	/		:			
B	F2-3	ND			,									
	EZ-3	ND									:			
	CZ-3	ND									:			
	K4-4	ND						·				·		

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	·
QA Tyoe	

10.0 00
Raf
A
438
5/1/2
234883
879824

Analyzed by	JB
Analysis date	5/2/12
Method (D=D rect, = nd rect, A= nd rect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (mi)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	' Mineral Class			:	1 = y	es, blank	= no
Ond	Grid Opering	Туре	Primary	Totai	Length	Width	- Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H2-6	NO		·										
	62-6	ND			Pup	A	70%	uburt	5%	deb	v's		·	
	FZ-6	ND			Por	B	80%	aturt	5 %	dela	u's			
	C7-6	MD						1						
	B2-6	ND						AB 51	2/12		: :			
B	HZ-3	ND						// /						<u>.</u>
	62-3	ND									:			
	F2-3	ND					,							
	62-3	NO												

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	(20KX) IOKX
Grid opening area (mm2)	0.01
Scale: 1L = .	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secorviary Filter Area (mm2)	
QA Type	

Client :	R	af
Sample Type (A=Air, D=Dust):		A
Air volume (L) or dust area (cm2)	9	139
Date received by lab	510	12
Lab Job Number:	2	34883
Lab Sample Numbar:	1	79825

F-Factor Calculation (Indirect Preps	Only):			
Fraction of primary filter used				
Total Resuspension Votume (ml)				
Volume Applied to secondary filter (ml)				

Analyzed by	ব ষ্ট
Analysis date	5/2/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	-A
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K2-6	ND				· •								
	H2-6	ND			Pm	٨	60%	Luf	5/2	lebr	٠			
	62-6	ND		٠.	Par	0B	80 %	ntant.	5%	Can	5			
		ND												
	EZ-6	ND						135	2/12					
3	H2-3	ND							/		:			
	62-3	20												
	FZ-3	ND		,.										
	E23	ND					·							

Resarvoirs	Environmental, Inc.	
TEM Astes	tos Structure Count	t

1	
Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	Raf
Sample Type (A=Air, D=Dust):	H
Air volume (L) or dust area (cm2)	939
Data received by lab	5/12
Lab Job Number:	234883
Lab Sample Number:	879826

Analyzed by	JB
Analysis date	5/2/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Fraction of primary filter used	Offiny).
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class	·····			1 = y	es, blank	= no
Cita	Ond Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K2-6	ND									:	ļ. <u></u>		
	42-6	MD						. /.		 				
	62-6	ND			P	BA	-B ~	80%	1 hr	<i>{</i>	5/ debu	5		
	FZ-6	ND							16					
	EZ-6	ND							B	5/2/	2			
B	152-3	MD				·			<u> </u>	//				
	H2-3	M						/	ļ					
	612-3	ND												
	F2-3	MD												

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



May 3, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 234993-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 234993-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101880-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 234993-1

Client:

Client Project Number / P.O.:

R & R Environmental

Client Project Description:

None Given

Date Samples Received:

3rd West Sub - RMP

Analysis Type:

May 2, 2012

Turnaround:

TEM, AHERA 24 Hour

Date Samples Analyzed:

May 3, 2012

8795**31**

ΕM

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID N	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-050112 W	EM	8795 2 8	0.0900	907	ND	0.0047	BAS	BAS
3W-050112 N	EM	8795 2 9	0.0900	907	ND	0.0047	BAS	BAS
3W-050112 F	FM	879530	0.0900	873	ND	0.0049	BAS	BAS

905

ND

0.0047

NA = Not Analyzed

3W-050112 S

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

0.0900

Effective Filter Area = 385 sq mm

DATA QA

BAS

BAS

Due Date: 5.3.12 Due Time: 537-

Results:

Contact

Contact

Phone Email Fax

Phone Email Fax

Date

Date

Time

Time

Reservoirs Environmental, Inc. 5801 Logan St. Demer, CO 81216 - Ptr. 303 994-1586 - Fax 303-477-4275 - Toll Fine :666 RESHEN

RES 234903

Pager: 363-566-2696 INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION: Compeny: due Roskella Embrumenta hone: 47 W 90005 #1 ex: joundy 111, 84070 Coll/panar: 801 541-1035 Cell/peger: rotect Number end/or P.O. #: Final Oats Dahversble Email Address: dave @meny 10,00m roject Description/Location: West Sub- RMO ASBESTOS LABORATORY HOURS: Weekdays: Tam - 7pm REQUESTED ANALYSIS **VALID MATRIX CODES** LAB NOTES: RUSH (Same Day) A PRIORIFY (Next Day) STANDARD Air = A Bulk = B (Rush PCM = 2hr. TEM = 6hr.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm 2312 Soil = S Wipe = W Metal(s) / Dusi RUSH 24 hr. 3-5 Day F = Food Swab = SW **Prior notification is RCRA 8 / Metals & Welding Drinking Water = DW | Waste Water = WW RUSH ___ 5 day ___10 day required for RUSH Fume Scan / TCLP O = Other turnerounds.** Organics 24 hr. _ _ 3 day ___ 5 Day "ASTM E1792 approved vripe media only" MICROBIOLOGY LABORATORY HOURS; Weekdays: 9am - 6pm E.coli O157:H7, Coliforms, 5.aursus 24 hr. ___2 Day 48 Hr. 3-5 Day Salmonella: Listeria, E.coli, APC, Y & M Mold RUSH __24 Hr_ 48 Hr __3 Day 5 Day **Turnaround times datablish a laboratory priorily, Subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidaya." Special Instructions: EM Number (Lationatory Date Use Only) Collected Collected Client sample ID number (Sample ID's must be unique) MICROBIOLOGY mm/dp/yy hh/mm a/o slodiz 3W050112 W 879523 3W-050112 N ŻĠ 3W -090112 30 3W-050112 S 31 5 6 7 8 9 10 (Additional samples shall be listed on attached long form.) Number of samples received: NOTE: REI will analyze incoming samples gasd uggs information received and w1 not be responeble for enora or omissions in calcutations recutaby from the inaccuracy of original data. By signing client/company representativa agrees that automission of the following samples for requested analysis as Indicated on this Chain of Custody shall constitute an example and success agreement with payment terms of NET 30 days, failum to comply with payment terms may result in a 1,5% monthly interest surcharge Fed-tox 01112 Relinguished By: Date/Time: Sample Condition: On Ice Sealed Intact / Laboratory Use Only **5**50 Temp. (F°) Yes Yes / No Yes / No 5.2.12 Feder Receivad By Date/Time: Carrier:

> Time 1052 7935

Date

Time

Initials

Initials

Contact

Contact

Phone Btaāi□Fax

Phone Email Fax

Initials

Initials

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
T	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

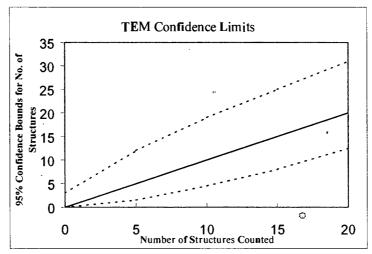
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N 8
Voltage (KV)	100 KV
Magnification	20RX 10KX
Grid openina area (mm2)	0.01
Scale: 1L=	0.28 um_
Scale: 1D =	0.056 um
Primary fitter area (mm2) Secondary Filter Area (mm2)	385
QA Tyue	

Client:	RAR
Sample Tyoe (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	207
Date received by lab	5/2/12
Lab Job Number:	234993
Lab Sample Number:	879528

Analyzed by	-CR
Analysis date	5/2/12
Method (D=Direct, !=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Oate Anaiyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class			1 = yes, blank = no			
- Cild	Cha Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	£4-4	(NA												
	EMM	M			Pre	r A	70% m	act 56.	lebn	, D				
	C4-4	M			Pn	er B	A	act 56.	5/2	112			,	
	96-1	m			· ·	, , 			<u> </u>					
	F61	M												
B	K5-1	M									!	,		
`	H3-1	M		·						_				
	95-1	M										_		
	(14-1	M												
								٥						٧

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	80KX JOKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area fmm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	RTR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	907
Date received by lab	5/2/12
Lab Job Number:	234793
Lab Sample Number:	879529

Lab Sample Number:	1879327
F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	·
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	5/3/2
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	70
Couriting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Identification Mineral Class				1 = yes, blank = no		
Ç	Sind Opening	, Type	Primary	Total	·Length	Width	Identification	Amphibole	c_	NAM	Sketch/Cornments	Sketch	Photo	EDS
A	44-3	ND												
	H4-3	ND			6	so A	80.	L'a but	- 5	%de	on's			
	64-3	ND			ρ.	pB	250	% intruf	5	Lo de	bri's			
	F4-3	M												
	E43	ND						1B =	/3/	2				
B	G12-1	MD						/						
	F2-1	ND												
	EZ-4	ND												
	C3-3	ND					,							
														,

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

D = Chrysotile

NAM = Non-asbestos material

T:\Warksheel in TEM Banch sheet.doc

Reservoirs Environmental, Inc. TEM Aspestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX-10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary lilter area (mm2)	385
Secondary Filter Area (mm2)	•
QA Type	

Client:	2+2
Sample Type (A=Alr, D=Dust):	A
Air yolume (L) or dust area (cm2)	873
Oate received by lab	5/2/12
Lab Job Number:	234793
Lab Sample Number:	879530

F-Factor Calculation (Indirect Preps Only):								
Fraction of primary filter used								
Total Resuspension Volume (ml)	·							
Volume Applied to secondary filter (ml)								

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	Δ
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	No. of Structures		Dimensions		Mineral Class			1 = y	es, blank	= no	
		Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K2-1	ND		,										
	H2-1	ND			Par	• ★	60	beatint	3-	7%	debors			
	62-1	ND			Pur	2	70	o/ointrut	5-2	20/	delons			
	F2-1	ND			- T									
	F2-6	ND						1B 5/	312					
B	K2-6	ND												
	H26	ND		·			•							
	62-6	MD												•
	F2-6	ND									V			
	ì							·						,

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
tnstrument	JEOL 100 CX (A) S
Voltaae (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	. 0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	•
QA Tyoe	

Client:	R+R.
Sample Tyoe (A=Air, D=Dust):	· A·
Air volume (L) or dust area (cm2)	905
Date received by lab	5/2/12
Lab Job Numben	234993
Lab Sample Number:	879531

F-Factor Calculation (Indirect Preps Only):						
Fraction of primary filter used						
Total Resuspension Volume (ml)						
Volume Applied to secondary filter (ml)						

Analyzed by	JB
Analysis date	5/3/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	13
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No, of Str	uctures	Oime	nsions	Identification	Mineral Class				1 = yes, blank = no		
	Ond Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K3-6	ND												! L
	H3-6	ND			Pas	o A	60	in fra	- 0	2/00	ebas			· -
	636	ND			Pup	B	80 9	Lanhart	5	· /	ebus			
	F3-6	ND			*			16						
	E3-6	ND		·			4	B 5/	3/12					
B	64-6	ND						1	/			·		
	F4-6	ND		·										
	E4-6	ND				,								
	C4-6	ND						, ,						
	·													

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff Filter Area (mm}^2)}{\text{A verage GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos stmctures Area Analyzed (mm²)

GO = TEM grid opening



May 4, 2012

Laboratory Code:

RES

Subcontract Number:

NA RES 23**5070**-1

Laboratory Report: Project # / P.O. #

None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 235070-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 235070-1

Client:

Client Project Number / P.O.:

R & R Environmental None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

May 3, 2012

Analysis Type:

TEM, AHERA

Tumaround:

24 Hour

Date Samples Analyzed:

May 4, 2012

Client ID Number	Lab ID Number		Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading (s/mm²)	
		(mm²)		(L)		(s/cc)	(s/cc)		
3W-050212 W	EM	87970 5	0.0900	876	ND	0.0049	BAS	BAS	
3W-050212 N	EM	879706	0.0900	876	ND	0.0049	BAS	BAS	
3W-050212 E	EM	879707	0.1000	837	ND	0.0046	BAS	BAS	
3W-050212 S	EM	879708	0.0900	876	ND	0.0049	BAS	BAS	

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity
Average Grid Opening in mm² = 0.010

Effective Filter Area = 385 sq mm

Anthry Cole.

(Dr. Chr - Anthry Cole.
C = US, C = Resonance
Encouraged Inc.
Cole. 7012 65 64
08 42 19 - 08/07

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 235070-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

May 3, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

May 4, 2012

Client ID Number	Lab ID Number		Asbestos Mineral	Asl	bestos Str	ucture Tyj	pes*	Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for	
				Fibers	Bundles	Clusters	Matrices			Concentration	
3W-050212 W	EM	87970 5	ND	0	0	0	0	0	0	0	
3W-050212 N	EM	879706	ND	0	0	0	0	0	0	0	
3W-050212 E	EM	879707	ND	0	, 0	0	0	0	0	0	
3W-050212 S	EM	879708	ND	0	0	0	0	0	0	0	

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date:_	5-4-12
Due Time:	895c

RESERVOIRS Environmental, Inc.

	Pager: 263-501 INVOICE TO: (IF	-2038	3		15 41-1 15	100 • F-3	3443	4//-	42 /S	- 11d	W 1-128	P 20%	(i) 1492±3	SS-8-1704	, CO	NTAC	T ik	IEO.	o M A	TION:		age	1(от : }	
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roject Number and/or P.O. #:								a Daliv								:									
roject Description/Location: 3 Wash Sub - RMP							<u>du</u>	we	<u>e</u>	N	<u>سر</u>	(vi	ത	وي.	4										
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RUSH (Same Day) PRIORITY (Next Day)				ΪŤ	Ť				1.311	T	Ť	T	Ť				Air =				Bulk				
(Rush PCM = 2hr, TEM = 6hr.)	· -				- {	1			-			ļ				Ċ	ust	= D			Paint				
HEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm		1		1 1								-				;5	Soil	= S		V	Vipe	= W			
Wetal(s) / Dust RUSH 24 hr 3-5 Day		1	된					11								Sw	vab:	= SV	<i></i>	F	F = F	ood			
RCRA 8 / Metals & Welding RUSH 5 day 10 day	**Prior notification is required for RUSH	ξ	Quant			a				afig.				8		Drinkin	g W	ater =	DW	Waste) Wa	ter = WW			
Fume Scan / TCLP	turnarounds.**	Point Count				Scan				Quantification				antification						Other					
Organics 24 hr 3 day 5 Day		통	O ti	1 1	1	Metals		11) ja	} }	8 8	5	NO TES		**AST	ME	1792	appro	ved wipe	e med	dia only**			
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm			Si A							ь	١٥	Quantification	Į.	fication, Qua		- :					-				
· - · · ·	3-5 Day	Long report,	5 2	OSHA	_	Analyte(s) 3LP, Welding Fume,				+	ge		12	\$ 6		:					ĺ				
Salmonella, Listeria, E.coli, APC, Y & M48 Hr3-5 Day		[왕	= 0		吾			l I,	÷	쇝	₩.	- 1 -	12	F 0											
	48 Hr 3 Day 5 Day		9 K	7400B,	Respirable	te(s) Wekd	Œ			8		5 6	σ	A Gen			+								
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Client sample ID number (Sample ID's must be unique	YX (Birk Kirtin Jerry Kurešt)	13	Sem	20	DUST	METALS RCRA 8	ORGANICS - METH	100 TE	M	ICRO				<u> </u>		Sample V (L) / Area	Matrix	8	Co	ollected m/dd/yy		Collected hh/mm a/p			drydr,
1 3W 050212W			x									Ī				876	_			ગ્યાર	I		Ð	19	705
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3 3W DDUZE	<u></u>							Ħ		<u> </u>	\vdash	1	1			837				1	\top				87
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10				Π	75	5991	¥ # 1				.,	<u>, </u>		748					T	145	T		. 1.475		77.5
Number of samples received: (Additio	nal samples shall be listed on	attac	hed lo	ona fo	rm.)	-	_	1	<u></u> -	<u> </u>	المشا		14:	<u> </u>	*****	<u> </u>			<u>ــــنــــنـــــــــــــــــــــــــــ</u>		<u> </u>	<u> </u>			
NOTE: REI will analyze incoming samples based upon information received and will not be re analysis as indicated on this Chain of Custody ahali constitute an analytical services agreeme	esponsible for errore or omíssicos in c	alculat	lons res	ulting f	rom ti	ho inacc											ve ag	roes ti	nat sub	mission	of the	loflowing sar	nples for r	equested	
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite	F = Fiber B = Bundle C = Cluster M = Matrix
T = Tremolite	IVI IVIALITA

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

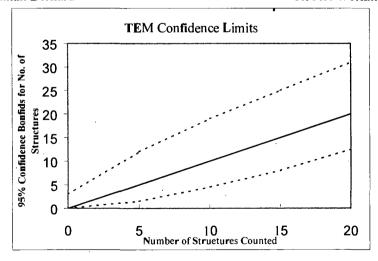
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

RtR
A
876
5/3/12
235070
879705

Analyzed by	- fle
Analysis date	5/3/12
Mettrod (D=Dlrect, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):		
Fraction of primary filter used			
Total Resuspension Volums (mi)			
Volums Applied to secondary filter (ml)		,	

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	entification Mineral Class				1 = y	es, blank	= no
JIIU .	Ond Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	112-3	M												
	92-3	M			Pre	PA	80X in	act 57. de	bms					<u> </u>
	F2-3	M			Price	VB.	A 1	act 57. de	112		:			
•	21-3	Ń												•
	C2-3	NO												
B	145-1	M												
	H5-1	M												
	451	N												
	P5-1	(M)		,										
													-	

Reservoirs Environmental, inc. TEM Asbestos Structure Count

TEM ASDESIOS SILUC	tare count
Client:	RTR
Sample Type (A≖Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	876
Oate received by lab	5/3/12
Lab Job Number;	235070
Lab Sample Number:	879706

Anal mad by	-IM
Analyzed by	
Anatysis date	5/3/12
Mettrod (O=Direct, I=IndIrect, tA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):									
Fraction of primary filter used									
Total Resuspension Volume (mi)	,								
Volume Applied to secondary filter (mi)	,								

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class			`	1 = ye	es, blank	= no
		Туре	Primary	Total	Length	Width	, taonimodion	. Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F1-6	M												
	ENB	M				Pry	n A 9	0% protact	- 5	i de	bin			
	C4-6	M				Pre	l '	•	//	5/31	62			
	B4-6	MÓ				<u> </u>								,
	34-4	M												
6	F43	M											<u></u>	
	EM-3	M												
	CM-3	M												
	343	M		,										

Laboratory name:

Instn/ment

Voltage (KV)

Magnification

Scale: 1L =

Scale: 1D=

(mm2) QA Tyoe

Grid opening area (mm2)

Primary filler area (mm2)

Secondary Filter Area

REI

JEOL 100 CX N S

20KX 10KX

0.01

0.28 um 0.058 um

385

Reservoirs Environmental, inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	30KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D ≠	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

120111000000000000000000000000000000000	
Client :	RtR
Sample Type (A=Air, O≔Oust):	A
Air yolume (L) or dust area (cm2)	837
Dale received by lab	5/3/12
Lab Job Number;	235070
Lab Sample Number:	879707

F-Factor Calculation (Indirect Preps	Only):		_
Fraction of primary fitter used	100		
Total Resuspension Volume (ml)		•	
Voltone Applied to secondary filler (ml)			

Analyzed by	JK
Analysis date	5/4/12
Method (D=Direct, I≖Indirect, IA=Indirect, ashed)	77
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = yes, blank = no		
		Туре	Primary	Total	Length	Width	Igontinoation	. Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	62-6	ND				:				}		,		
	72-6	ND				Pu	h.A.	70% h	A	5%	debns			
	EZ-6	ND				Pur	13 8	O fourte	t-	%	Jelows			
	E3-6	ND					· .	6						
	C36	ND					1	B 514	12					
3	H2-3	NP						11]					
	62-3	ND												
	F2-3	MD												
	E2-6	ND												
	C2-6	MD								•				

Resarvoirs	Environmental, Inc.
TEM Asbes	tos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	30KX IDKX
Grid opening area (mm2)	0.01
Scale: 1L =	0,28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
OA Two	

RtR
A
876
5/3/12
235070
879708

Analyzed by	JB
Analysis date	5/4/12
Method (D≖Direct, t≕indirect, tA≂indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps C	Only):	
Fraction of primary (liter used		
Total Resuspension Volume (mi)		
Voluma Applied to secondary filter (mi)		

Grid	Grid Opening	Stmcture	No. of Str	uctures	Oime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
J.10	Grid Opening	Туре	Primary	Total	Length	Width	Identification	. Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K3-6	MD			·									
	H3-6	ND			P	p A	80%	on hut	3-	-5%	debns			
	636	ND			ر ا	بم آ	3 70%	aufunt	3	5%	debus			
	F3-6	ND						h					<u></u>	
	E3-6	ND						15	5/4/1	2_			<u> </u>	
B	152-3	ND						/ (17			<u>.</u>		
ļ	H2-3	NO					·							
	62-3	ND												
	F2-3	N		,	ļ									
		:								2		<u> </u>		

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



May 7, 2012

Laboratory Code:

RES

Subcontract Number: Laboratory Report:

NΑ

Project # / P.O. #

RES 235168-1 None Given

Project Description:

3rd West Substation

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 235168-1 is the job number assigned to this study. This report Is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 235168-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description: Date Samples Received:

3rd West Substation

Analysis Type:

May 4, 2012

Turnaround:

TEM, AHERA

6 Hour

Date Samples Analyzed:

May 4, 2012

Client ID Number	Lab ID Number		Area Analyzed			Analytical Sensitivity	Asbestos Concentration	Filter Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W0503-N	EM	879894	0.0700	1200	ND	0.0046	BAS	BAS	
3W0503-S	EM	879895	0.0700	1200	ND	0.0046	BAS	BAS	
3W0503-E	EM	879896	0.0700	1200	ND	0.0046	BAS	BAS	
3W0503-W	EM	879897	0.0700	1200	ND	0.0046	BAS	BAS	
Blank (Not on Grig. COC)	EM	879898	NA	0	NA				
Blank (Not on Grig. COC)	EM	879899	NA	0	NA			·	

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010

Effective Filter Area = 385 sq mm

DATA QA

5801 Logan Street, Suite 100 Denver, CQ 60216

1-866-RE SI-ENV

Due Date:_	5-5-12
Due Time:	8:450

RESERVOITS Environmental, Inc.

Page <u>1</u> of __ INVOICE TO: (IF DIFFERENT) **CONTACT INFORMATION:** Company: hone roject Number end/or P.O. # Final Data Delivarable Email Address: mject Descriptiona ocation: ASBESTOS LABORATORY HOURS: Weekdays: 7ami - 7pm REQUESTED ANALYSIS VALID MATRIX CODES LAB NOTES: PLM / PCM/TEM RuSH (Same Day) PRIORITY (Next Day) STANDARD Air = A Butk = B (Rush PCM = 2hr, TEM = 6tg.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: Bam - Spm Soil = S Wipe = W RUSH____3-5 Day F = Food Metal(s) / Dust Swab = SW Quant, **Prior notification is Drinking Water = DW | Waste Water = WW RCRA 8 / Metals & Welding _RUSH ___ 5 day ___10 day rsquired for RUSH Fume Scan / TCLP ISO, +/-, rect Preps O = Other turnarounds.** "ASTM E1792 approved wipe media only" 24 hr. ___ 3 day ___ 5 Day Organics MIGROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm E.coll O157:H7, Coliforms, S.aureus 24 hr. __2 Day 3-5 Day Salmonetta, Listeria, E.coli, APC, Y & M 48 Hr. __ 3-5 Day Mold RUSH 24 Hr 48 Hr 3 Day S Day "Turnaround itmes establish a laboratory priority, subject to laboratory volume and are not quaranteed. Additkmat fee apply for aftarhours, weekends and holidoys.** Matrix Code Special Instructions: EM Number (Labpreidr) METALS Date Time Use Only) Collected Collected (Sample ID's must be unique) Client sample ID number MICROBIOLOGY hh/rnm a/p MGZ/ 879-594 2 zCŒ 37 4 98 6 2 8 9 10 Number of samples received: (Additional samples shall be listed on attached long form.) NOTE: REI will analyze incoming samples based year bent patton received end with not be responsible for errors or omissions in calculations resulting from the inaccuracy of odginal data. By signing clisnifcompany representative agrees that submission of the following samples for requested analysis as indicated withis Chain of Gustody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may resulting 1.5% monthly interest aurcharge. Relinquished By: Date/Time: Sample Condition: On Ice Sealed Inlact ¥96/No Laboratory Use Only remp. (F°) Yes / No Yes / No Received By Results: Date 5/3/12 Time 9:40 & Initials 1/12 Contact Phone Elhall Tax Date Phone Email Fax Time Initials Contact Phone Email Fax Phone Email Fax Date Time Initials

fred fr. 2728 3112 6428 7-2011_version 1

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
T	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

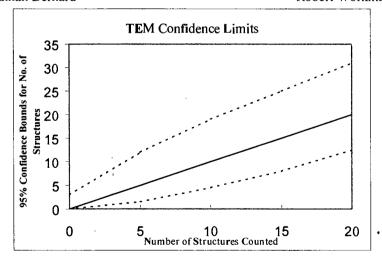
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Resarvblrs Environmontal, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N
Voltaae (KV)	100 KV
Magnification	POKX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 urn
Scale: 1D =	0.056 um
Primary fitter area (mrn2) Secondary Filter Area (mm2)	385
QA Tyoe	

Client :	RtR.
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	1200
Dale received by lab	5/4/12
Lab Job Number:	235168
Lab Sample Number:	879894

Analyzed by	-lk
Analýsis date	5/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	0
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps On	ly):
Fraction of primary filter used	
Total Resuspension Vohure (ml)	
Volume Applied to secondary tilter (ml)	

Grid	Grid Opening	Structure	No. of Structures		Dimensions		Identification	Mineral Class				1 = yes, blank = no		
0		Туре	Primary	Total	Length	Width	Idonalioation	Amphibole	. с	NAM	Sketch/Comments	Sketch	Photo	EDS
A	63-3	M		,						."				
	F33	M			(n	er A	60X N	4ac 5-1	ox de	bis			<u>.</u>	
	€3-3	M			Cr	ep B	1500	Hack 5-1	100	lebr	Jak	25/	1/12	<u>. </u>
·.	03-3	M												
3	FYY	M												·
	24-1	M												
	1.46	M												
										. :				

Roservoirs Environmental, Inc. TEM Asbestos Structure Count

	Main Anniir
Client :	RIP.
Sampla Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1200
Oate received by lab	5/4/12
Lab Job Number:	235168
Lab Sample Number:	879895

	01/
Analyzed by	-ll
Analysis date	5/4/12
Method (D=Direct, I=IndirecL (A=Indirect, ashed)	۵
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Prepa	Only):
Fraction of pitmary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filler (mi)	

Grid	Grid Opening	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Ond	Grid Operating	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS	
A	US-4	NO							4						
	KSM	M			Pre	P	100% W	Huce 51	2 1	bis					
	F4.3	M			Pres	B.	A	tock 51	5/4	112			·	<u></u> .	
	03-1	M						0 12							
3	K6-1	M													
	176-1	M									:	<u> </u>			
	P4-3	M													

Laboratory name:

Instrument
Voltage (KV)

Magnificatkın

Scale: 1L == Scale: 1D ==

(mm2) QA Type

Grid opening area (mm2)

Primary filter area (mm2)

Secondary Filter Area

REI JEOL 100 CX N (S

> 100 KV 20KX 10KX

> > 0.01 0.28 um

0.056 um

385

Roservoirs Envhonmentat, 1ric. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D ≈	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Cilent:	RIP
Sample Type (A=Air, O=Dust):	A
Air vokıme (L) or dust area (cm2)	1200
Date received by lab	5/4/12
Leb Job Numben	235168
Lab Sample Number:	879896

Analyzed by	M
Analysis date	5/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	0
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspenskm Volume (mi)	 . ,
Volume Applied to secondary filter (mi)	

Grid	Grid Opening	Structure No. of Structures Dimensions Identification		Identification	Mineral Class				1 ≃ yes, blank = no					
Gila	Grid Opening	Туре	Primary	Total	Length	Width	Identification	Amphibola	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H5-3	M		·	`.			·		·				
	C15-5	M			Pre	A	Fil in	met 5%	del	213				
	P5-3	M			Prio	BA	A	met 5/	Visi					
	ES:3	M												
B	Hy-1	M							<u> </u>			ļ 		
	GHI	M					,							·
	my	M							<u>.</u>					
				,										

Reservoira Environmental, inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	60KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L ==	0.28 um
Scale: 1D=	0.058 um
Primary filter area (mm2)	365
Secondaly Filter Area (mm2)	
QA Type	

Client:	RIF
Sample Type (A=Alr, D=Dust):	A
Air yolume (L) or dust area (cm2)	1200
Date received by lab	5/4/12
Lab Job Number:	.235168
Lab Sample Number:	879897

Analyzed by	-lk
Analysis data	5/4/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	0
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps C	Onty):
Fraction of primary filter used	
Total Resuspension Volums (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening S		No. of Str	uctures	Dime	nsions	tdentification	Mkieral Class	·		1	1 = y	es, blank	= no
·	Ond Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-4	W			·				: .	·				
	H4-4	M		·	Pre	of &	0% Inda	4 5-7%	deb	10	i			
	G4-4	W			Pn	y B.	16CR 1	4 5-7/s	77 de	bro	Soft	5/4	1/12	
	pyy	M									00			
3	13-10	M												
	B3-6	M												
	C3-1	M				<u> </u>								
				,			·							
						T								

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



May 8, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. # Project Description: RES 235272-1 None Given RMP - 3rd West

Substation

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 235272-1 Is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101898-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 235272-1

Client:

R

Client Project Number / P.O.:

R & R Environmental None Given

Client Project Description:

RMP - 3rd West Substation

Date Samples Received: Analysis Type:

May 7, 2012

Turnaround:

TEM, AHERA 24 Hour

Date Samples Analyzed:

May 7, 2012

Client	Lab	Lab ID Number		Air	Number of	Analytical	Asbestos	Filter
ID Number	ID No			Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W0S04-N	EM	880127	0.0800	970	ND	0.0050	BAS	BAS
3W0504-S	EM	880128	0.0800	970	1	0.0050	0.0050	12.5
3W0504-E	EM	880129	0.0800	970	ND	0.0050	BAS	BAS
3W0504-W	EM	880130	0.0800.	970	NO	0.0050	BAS	BAS
3W0504-FB	EM	880131	NA	0	NA			
3W0504-FB	EM	880132	NA	0	NA			

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

Deptidy agreed by Electron
By Electron
Did Chi e Survivo
Did Chi e Survivo
Bearing C
US O Pleaser core
Environmental
Inc.
Dees 2012 05 06

DATA QA

Effective January 1, 2012 T:\QAQC\Lab\Raservoirs Environmental QA Manual.doc

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 235272-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description:

RMP - 3rd West Substation

Date Samples Received:

May 7, 2012

Analysis Type:

TEM, AHERA 24 Hour

Turnaround: Date Samples Analyzed:

May 7, 2012

Client ID Number	Lab ID Ni	Lab ID Number		Δel	bestos Str	ucture Tvi	nes*	Structures >5 Microns in Lengtti	**Excluded Structures	Asbestos Structures for	
			-	Fibers		Clusters		III Lengtti		Concentration	
3W0504-N	EM	880127	ND	Ō	0	0	0	0	0	0	
3W0504-S	EM	8801 2 8	Chrysotile	0	0	0	1	0	0	1	
3W0504-E	EM	8801 2 9	ND	0	0	0	0	0	0	0	
3W0S04-W	EM	8801 3 0	ND	0	0	0	0	0	0	0	
3W0504-FB	EM	880131	NA							0	
3W0504-FB	EM	8801 32	NA							0	

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confinnation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect aspect ratio

ND = None Detected

				SB01 Legan S	St. Denver, C		6 - Phr. 30	53 BS4-1	1926 - F	× 393-4	11-4275	- Tetli	Fize:	926 RE	SHEWY		_		•	Page	1 0	1
				INVOICE			EREN'	T)							c	ONTAC	TINE	ORN	ATION:			
Compony: 2	JE FINISON W	reduced Inc	Comp					-/	Co	ntact:	244	12	220	00	lles	1		Contact				
Address: 25	1.2.00005	repter, Inc	Addre	88:					Ph	ne:		1 5	4	11	351			Phone:				
	and was	1 64177						-	Fa	:	TU	· · · ·	بحد			-		Fax:				
<i>ill</i>	- Way ; Was sor	1 60 10 10				-			Ce	/pager:								Cell/pag	jer:			
Project Number	and/or P.O. #;				·			,	Fir	al Data i	Sellverat	de Email	Addre	uss:								
Project Description	DIVLocation: ZMP-	300 WELL GI	Station						丄							· .						
ASBESTO	S LABORATORY H	OURS: Weekdays; 7an	n - 7pm	1000 100		3.47	1 177	1838	REQU	ESTE	D AN	ALYS	IS	1	er, Te	, 1.4.	VAL	D M	ATRIX CO	DES	LAI	NOTES:
PLM / PCM		SH (Same Day) PRIORI		STANDARD		П						TT	T			1	Air = A	A	В	ulk = B		
		(Rush PCM = 2hr, TE		-			- 1		1				1		H	, ,)usi =	0	P	aint = P		
CHEMIST	RY LABORATORY	HOURS: Weekdaya: 8a	m - Spm	and the state	v + 3 + 5 F y	1											Soil =	s	w	ipe = W		
Metal(s) / Di		RUSH 24 hr				1	.	ļ		1		11					rab = :			= Food	ļ	
	etals & Welding		**	Prior notification	n is		Quant		_			8			اءا					Water = WW	t	
Fume Scan		RUSH 5 day	_10 day :	required for RU		ğ			Scal		11	128			g 93	D7,1	gvva		= Other	1101 - 1111		
Organics		24 hr 3 day	5 Day	turnarounds.*	•	1 ⊆	7 eps		S S			F			1 € 5	"AS	M E17			madia only**	\vdash	
	LOGY LABORATO	RY HOURS: Weekdays		177147797	15 A		S 25	1	Metals	1		3	atio	, ja	C. C. Lar		П	Ť			 	
	H7, Coliforms, S.aur			3-5 Day		report	7402.	⋖	Ę	1 1	11	5	事	覆ෂ] _: ₹	1	1 1					
1	Listeria, E.coli, APC		3-5 Day	•		E	S 4	왕	ng Furne,		1	 		휼휼	S S	1	1 1	· [
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		ples based upon information receive custody shall constitute an anghtical															ve agre	es that :	submission o	The following sa	mples for red	quested
Relinguis	had Ry	_ 1		~ <u>`</u>	5/	4/,	7 -)ata/T		14	K	$\overline{\mathcal{L}}$				50	male	Condi	illon:)n (no	Saalad	- A⊒ant
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A =	Amosite	F =	Fiber
An =	Anthophyllite	B =	Bundle
C =	Chrysotile	C =	Cluster
Cr =	Crocidolite	M =	Matrix
T =	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

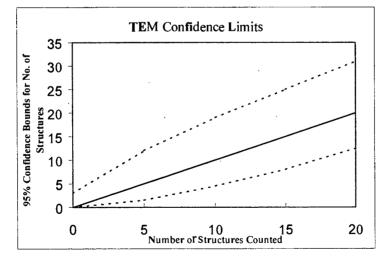
1 length unit = 5 mm on screen = 0.278 micron 1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	ROKX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	RtR.
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	970
Date received by lab	5/7/12
Lab Job Number:	235272
Lab Sample Numben	880127

F-Factor Calculation (Indirect Preps Only	0:
Fraction of primary filler used	•
Total Resuspension Volums (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	THE
Analysis date	5/7/12
Method (D=Direct, l=Indirect, lA=Indirect, ashed)	D
Counting rules (ISO, ANERA, ASTM)	AH
Grid storage location	Moniti Analyzed
Scope Allanment	Date Analyzed

Grid	Grid Opening	Structure	No. of Structures		Dimensions		Identification	Mineral Class				1 = yes, blank = no		
	Ond Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	FU-1	CON		`										
	ans	M			Pre	P	of in	mc 52	des	صرک				
	CU-1	M		<u>.</u>	Pi	ex 3	2002 n	haus 52	debi	<i></i> وا	W/ 5/7	1/12		
	B4-1	MD			,									٠
B	95-1	M							-					
	F5-1	M												
	@5·1	M												
	05-1	M												
				,							:			

Rosarvbirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(ROKX) IOKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2) Secondary Filter Area	385
(mm2)	· · · · · · · · · · · · · · · · · · ·
IQA Type	ţ

Client :	RTR
Sample Tyoe (A=Air, D=Dust):	_A
Air volume (L) or dust area (cm2)	970
Date received by lab	5/7/12
Lab Job Numben	235272
Lab Sample Numben	880128

; · · · · ·	
Analyzed by	TH
Analysis date	5/7/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps O Fraction of primary filler used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Strncture	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = yes, blank = no		
	Ond Opening	Туре	Primary	Total	Length	Width	identinication	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	ts-1	M					·		<i>i</i> .			·		
	251	M				Pres	4 ec	Dirtuct	σŽ	le b2	tope s			
·	051	W				Over	B ~8	Ob orbust	580	ebre	Tope s	7-7	-	
	B51	M												·
B	G4-3	M				<u> </u>								
	M3	M			:	·						<u> </u>		
	E4-3	MAA)			9	3	cn							
	04-3	NO												
											-:			

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

1207,0005(05 04 00)	uio cour
Client :	12+
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	9-
Date received by lab	5/-
Lab Job Numben	235
Lab Sample Number:	880
F-Factor Calculation (Indirect Preps (Only):
Fraction of primery filter used	

Analyzed by	TH
Analysis date	5/7/12
Method (D=Dlrecl, l=Indirect, IA=Indirect, ashed)	D.
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

1.

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class] :	1 = yes, blank =		= no
Sila	Grid Operang	Туре	Primary	Total	Length	Width	Identification	Amphiloole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F3-3	M												
	H33	M			ln	er A	8020	vart 52	dela	· ~>				
	033	M			0	ner 1	BNA	Jall	51	211				
	P33	W												
B_	636	N2												
	83-6	M			<u> </u>									
<u> </u>	826	NO							<u> </u>					
	136	W												
														·
	·													

LA = Libby-type amphibole

Laboratory name:

Instrument
Voltage (KV)

Magnification

Scale: 1L =

Scale: 1D =

(mm2) QA Type

Grid opening area (mm2)

Primary filter area (mm2)

Secondary Filter Area

REI JEOL 100 CX N (S

100 KV

0.01

0.28 um 0.056 um

385

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbesios material

Reservoire Environmental, 1no. TEM Asbestos Structure Count

	
Laboratory name:	REI
instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	·

Client :	RtR
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	970
Date received by lab	5/7/12
Lab Job Numben	235272
Lab Sample Number:	880130

F-Factor Calculation (Indirect Preps (Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	THE
Analysis date	5/7/12
Method (D=Direct, l=Indirect, tA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	¹ Dime	nsions	Identification	Mineral Class			1 = yes, blank = no			
Sild	Grid Opening	Туре	Primary	Total	Length	Width	Identification	. Amphib0le	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	63-3	20		,										
	F3-3	(N)			Pres	A	Porvar	+ 52 Jd	120					
	83-3	M			ln	n B	~ 30%-	+ 52 Jd	Bele	bon	72/05	7/2		
	13-3	W						<u> </u>						
8	634	M												
	F37	M				<u> </u>	·					<u> </u>		·
	834	Su												
	C34	M												

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Eauations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening